

PLANNING AHEAD

Notes for the Planning Community

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A Word from the Editor

Harry Kitch – CECW-PD

We have heard that some of our folks in the planning community have not even heard of this newsletter! Our objective in publishing this document was to provide another avenue to get the word out to all planners and planning team members. Please share this document with others involved in helping to develop the Corps water resources program. We hope that by the next issue we will have an improved way to distribute *Planning Ahead* and it will allow interested readers to establish their own subscriptions. In the meantime, please distribute this to all our planning team members. You can find past issues at: <http://www.usace.army.mil/inet/functions/cw/cecwnews.htm>



In Memoriam

The Sacramento District reports the loss of one of its beloved team members. Frederick "Rick" Dreher of the Sacramento District Planning Division lost his life in an automobile accident in Utah on the 20th of April 1999. His funeral was held in Madison Wisconsin on April 29th and a memorial service will be held in Sacramento on May 11, 1999. A 15-year veteran of the Corps, Rick worked on many projects and was well known throughout the Corps. Rick started his career in the Los Angeles District and moved to Sacramento in 1994. For the last eighteen months, Rick has worked on the Sacramento and San Joaquin River Basins Comprehensive Study. He was a key contributor to this multi-disciplinary, multi-agency flood damage reduction and ecosystem restoration team. Rick's efforts were instrumental in completing Phase I of this highly intense comprehensive study. His expertise and camaraderie will be sorely missed by his friends and colleagues. Rick had a special interest in integrating flood management with ecosystem restoration. He was also an active skier, windsurfer, and mountain biker. ❖

National Academy of Sciences Examines Corps Planning

Kirby (Brad) Fowler - CECW-PD

Three Nobel laureates recently offered their thoughts to a national teachers group. The teachers, perhaps thinking the laureates out of their league, declined the offer, not too graciously some say. Are non-Hollywood, non-sports, non-politico Big Names discounted these days, or did the laureates already have their fifteen minutes of fame. Maybe both, but there was an unwillingness to even listen – were the teachers smug? – was there a ‘we know better’ attitude? – and perhaps this unwillingness rankled some people. Well, those laureates weren’t trained teachers, were they; they were just chemists, doctors, and such, weren’t they?

Now comes the National Academy of Sciences to the Corps of Engineers. The Academy, through its principal operating agency, the National Research Council (NRC), has published the long awaited report on Corps planning – *New Directions in Water Resources Planning for the U S Army Corps of Engineers*.

Are parallels implied? Not necessarily. The Academy was invited, to be sure, and Corps people cooperated with the study. But does that mean the Corps will listen? There’s a good chance the Corps will listen; in fact the Corps has received the NRC report, and one copy has already been sent to the ‘senior’ planner in each division and district, *wherever* he/she is organizationally. The Corps will listen, but will it hear? What do you think?

Here are a few of the Academy’s conclusions:

- Corps planning does not take too long. Time for the Corps to plan fits right in with time for the private sector to plan (and other public sectors), for projects of similar complexity. When’s the last time you heard that? Do you

agree? Many senior Corps people have said they don’t.

- The P&G need an overhaul. They shouldn’t be scrapped; they don’t need complete redoing; they need updating – to reflect the “contemporary analytical techniques and changes in public values and federal agency programs”. This is a fair assessment, probably, but how important is P&G revision, really. A lot perhaps – psychologically? Would a new P&G boost organizational spirit? Do “gaps” in the P&G have any effect on you that filling them would improve?

- The benefits of flood damages avoided should be included in the benefit-cost analysis of all flood damage reduction projects – including all nonstructural projects. Remember the word “zeitgeist” in *Planning Ahead* some months ago? Well, it’s back; in my opinion this recommendation is a result of zeitgeist, which is a spirit or idea so common and popular that it has to be true, even if it’s not. And if it’s not true, pretend it is. Even the Academy is not immune to zeitgeist?

- The Corps should use the watershed or river basin, estuarial region, and coastal unit as the basic spatial units in water project planning ... “to promote efficient plans”. How well does the NRC support this recommendation? Does watershed planning offer real advantages? To whom? For what purposes? Is watershed planning partly zeitgeist?

We invite you to read, and read closely, the NRC report. Tell us what you think, and tell your bosses, and it wouldn’t hurt to spread the word around to Project Delivery Teams and Project Management. Your bosses (MSC planning ‘chiefs’, anyway) and Jim Johnson will discuss this report when they meet at Sawmill Creek, Ohio, in August/September.

But we want to *publish* your comments and thoughts in *Planning Ahead*. It’s you, the journeyman and supervisory planners, who experience planning as it is, plus have insight into planning as it should be, that we

particularly want to hear from. Write a review and we'll publish it. Or just send your random thoughts; we'll collect and publish them. If you think you need anonymity, we can do that too.

New Directions in Water Resources Planning... is at your location. Hunt it down.

Additional copies are available from the National Academy Press (800 624 6242 or 202 334 3313). The list price is \$42.00/copy, but it may be discounted. If ordered online, copies are discounted to \$31.20. The URL for the National Academy Press reading room is <http://www.nap.edu/readingroom/enter2.cgi?EG.html>, or you can start at the National Academy of Sciences/ National Research Council, <http://www.nas.edu/nrc>, and then burrow in. There also you can read the report or download it for free (but inconveniently, page by page).

Remember, the National Academy of Sciences is the best the federal government has to offer! From time to time, it may include Nobel laureates. ❖

Corps Names American Heritage Rivers Navigators

Beverly B. Getzen - CECW-PF

The Corps of Engineers has named two full-time River Navigators to support the American Heritage Rivers Initiative. Mr. Owen Dutt, from St. Louis District, has been selected as the Navigator for the Upper Mississippi River. Owen was formerly Chief of Planning in St. Louis District. He'll be working with the communities and organizations along the Upper Mississippi River to develop and implement work plans for economic revitalization and sustainability as well as environmental restoration along the river. This is a multi-state, complex activity and Owen will be providing the Federal partner support.

Mr. Ben Borda, from Huntington District, has been selected as the New River

Navigator. Ben was formerly Chief of Environmental Branch in Huntington. In his new role, he will be working with the New River Community Partners in expanding their workplan to encompass the three participating states of North Carolina, Virginia and West Virginia. Plans along the New River include community revitalization, economic development, alternative agriculture and restoration of portions of the river. There are 21 participating counties in the three states involved.

River Navigator positions are also being filled by other agencies for other named American Heritage Rivers. Glenn Eugster will be the Navigator for the Potomac River and Barbara Elkus will be the Navigator for the St. Johns River in Florida. Both Glenn and Barbara are EPA employees. Positions as Navigator for other rivers will be named shortly. All the Navigators will spend the week of 17 May in Washington, DC, with White House, CEQ, Congressional, and Federal agency representatives, during which they will be briefed on various agency programs and ways of accessing or "navigating" the Federal system to understand, leverage and apply various Federal programs for assistance to their river communities and partners. ❖

IWR's 30th Anniversary

Kyle E. Schilling, Director

The U.S. Army Corps of Engineers established the Institute for Water Resources (IWR) on April 18, 1969. IWR's mission then and now is to serve as a state-of-the-art analytical and planning methodology development resource for the Corps. IWR provides the Corps with a specialized technical expertise in the areas of planning methodology development, policy development, socio-economic and regional economic impact analysis, program analysis and evaluation, and the evaluation of water

resources and transportation projects and systems.

IWR's primary focus is on the development of water resources investment decision-making methods that emphasize strong support to practicing planners in the field, while fostering technological and methodological improvements into the future. Over the past decade IWR has also been called upon to lead critical water resource related national studies. IWR also provides technical assistance, training, and technology transfer to the field and headquarters.

Key subject matter areas of expertise include NED evaluations, risk-based analysis, regional economic impact analysis, evaluation of flood damage data, alternative dispute resolution, public involvement techniques, evaluation of port, harbor, and inland navigation projects, water supply and drought planning and analysis, environmental policy analysis, climate change analysis, and multi-objective trade off analysis including the evaluation of environmental mitigation and restoration outputs.

Some of our recent products include the Planning Manual and the Planning Primer, the Water Supply Handbook, the Civil Works Environmental Desk Reference, and the Civil Works Pocket Policy Digest. Most of these and other IWR products are available from our website at <http://www.wrsc.usace.army.mil/iwr/>.

Some of our current initiatives include assisting Headquarters in developing guidance on ecosystem restoration and guidance for implementing a watershed perspective. We are also developing a Brownfields handbook, a ways and means analysis for achieving customer satisfaction, and providing support to Headquarters in revising the Planning Guidance Notebook (discussed in the January 1999 issue of *Planning Ahead*). Other activities include managing the Risk Analysis for Water Resources Investment program (including new work units in the areas of environmental restoration and deep draft navigation),

continued work on the application of the decision support software "IWR Plan", and the development of vessel operating costs for deep draft vessels (released by Headquarters planning in February 1999) and shallow draft vessels (planned for release in the summer).

In closing and reflecting on the thirtieth anniversary of IWR, it is noteworthy to recall the writings of Chief of Engineers General Frederick J. Clarke, who in response to a Congressional inquiry as to the creation of an institute for the study of water resource related issues, wrote the following:

"We need the Institute to provide us with the means for making essential improvements in the Corps of Engineers planning... and to be responsive to the changing concerns of our society. The institute would bring together experts in "engineering, economics, social sciences and related disciplines so that, working in concert, they can develop methods for fully coordinating these specialties into all phases of our planning." ♦

Tools for Risk-Based Economic Analysis

Michael R. Walsh, CEWRC-IWR-R

The Institute for Water Resources (IWR), through research and partnership with Corps Districts, has developed a set of tools and techniques to support risk-based economic evaluations involving decisions related to major rehabilitation and maintenance investments. Desktop computer models have been developed and applied in the areas of:

- Rehabilitation of hydropower facilities
- Rehabilitation of navigation locks
- Levee/dike performance
- Commodity transport on waterways.

The models provide a framework for developing and storing required data, performing the needed calculations, evaluating results, and comparing with- and without-project alternatives from a benefit/cost perspective. The models are more general, easier to use and understand, and significantly faster than previously available methods, and can easily be directly applied or adapted to many problems.

There are two resources available for anyone who wants to learn more about these models and the underlying concepts and techniques. The first is a report entitled, "Tools for Risk-Based Economic Analysis". This report is available on the IWR web site at

<http://www.wrsc.usace.army.mil/iwr/pdf/99r02.pdf>

The second is a set of web pages describing each of the risk-based models developed thus far. Those web pages can be accessed at:

http://www.wrsc.usace.army.mil/iwr/risk/risk_tools.htm

We are interested in applying and extending these tools by addressing risk-based problems faced by planners throughout the Corps. We have found that the best way to develop viable risk tools is by working closely with District professionals to address their real-world problems. If you are interested in using any of our tools or have a risk-based analysis that must be done, please let us know. I can be reached at (703) 428-7087 and by email at

michael.r.walsh@wrc01.usace.army.mil

IWR developed the suite of models to implement complex simulation solutions in as simple a manner as possible, consistent with the nature of the problem under analysis. All of the models share a common approach and architecture. Experience in development and

application of these models has provided IWR with a strong background, experience, skill and tool set in dealing with problems associated with risk-based analysis of investment decisions.

Investment problems involving risk-based analysis are typically complex, requiring assessments of the important elements of variability of the physical and economic systems under study. This can require a multi-disciplinary effort, at minimum, expertise in engineering, economics, and statistical methods.

Corps guidelines mandate the use of risk-based economic analysis for major rehabilitation studies, but do not prescribe exact methods. Thus, a variety of applications of risk-based techniques have been developed for particular studies and investigations, with different degrees of complexity and sophistication. There is duplication of effort, as similar problems are handled individually, on a case and site specific basis. There is little uniformity in the techniques used and the particular risk elements included, even for comparable problems. The techniques used may not be easily understood, with little documentation, and can be difficult to assess in terms of technical correctness, leading to problems in the review process. Risk-based analysis is relatively new within the Corps, and experience with the methodologies is still evolving. Thus, even where tools have been developed, there is no guarantee that they will be appropriately applied.

Many of the problems addressed by risk analysis are similar in nature (rehabilitation of hydropower facilities or navigation locks), and require similar techniques (statistical analysis, generation of random numbers, etc.) Thus it is desirable to develop consistent, efficient, technically correct, easily used, and well-documented approaches which can be applied across a range of problems, and integrated into the decision process at an early stage. Over time, a body of experience can be built up around standard techniques,

leading to greater transferability and ease of use.

Existing tools are generally custom spreadsheet-based analyses, developed on a site-specific basis to serve the needs of a particular study. Development of such tools requires a significant learning curve. Spreadsheet tools tend to be slow to operate, and inflexible. As such, it is less likely that they will be used appropriately. Further, such tools are difficult to evaluate and review externally.

Given the similarity of problems, the unfamiliarity of the technology to many, and the difficulty of insuring that a particular tool has been developed and applied correctly, there is great value in developing a set of risk-based analysis tools that can be used across a number of projects. ❖

Native American Culture

Paul Blakey – CECW-PC

This is the fourth in a series of articles that we are presenting on Native American culture. When working with Native Americans in our planning, operations and construction projects, one should keep in mind the culture and ideas that they share, and the government to government relationship that we have with Federally recognized Tribes. The following, is extracted from Touch the Earth - a Self-Portrait of Indian Existence, compiled by T.C. McLuharn, published by Pocket Books, New York, NY:

Hehaka Sapa, or Black Elk, belonged to the Oglala division of the Teton Dakota, one of the most powerful branches of the Siouan family. He was born in "the Moon of the Popping Trees [December] on the Little Powder River in the winter when the Four Crows were killed in 1863." Related to the great Chief, Crazy Horse, he had known Sitting Bull and Red Cloud and

was well acquainted with the early days of his people when they had roamed the Plains; he was also present at the battle of Little Big Horn. Later on in life he traveled with Buffalo Bill to Italy, France and England, where he danced for Queen Victoria. Black Elk possessed unique spiritual power recognized by everyone and had been instructed in his youth in the sacred traditions of his people by the great priests. His father had been a medicine man; several of his brothers also. He spent his last days on the Pine Ridge Reservation in South Dakota. The following passage is taken from his autobiography which he dictated in 1930-31 to Flaming Rainbow. The configuration of the circle, referred to here by Black Elk, had a fundamental place in Indian life.

“YOU HAVE NOTICED THAT EVERYTHING AN INDIAN DOES IS IN A CIRCLE, and that is because the Power of the World always works in circles, and everything tries to be round. In the old days when we were a strong and happy people, all our power came to us from the sacred hoop of the nation and so long as the hoop was unbroken the people flourished. The flowering tree was the living center of the hoop, and the circle of the four quarters nourished it. The east gave peace and light, the south gave warmth, the west gave rain, and the north with its cold and mighty wind gave strength and endurance. This knowledge came to us from the outer world with our religion. Everything the Power of the World does is done in a circle. The Sky is round and I have heard that the earth is round like a ball and so are all the stars. The Wind, in its greatest power, whirls. Birds make their nests in circles, for theirs is the same religion as ours. The sun comes forth and goes down again in a circle. The moon does the same, and both are round.”

“Even the seasons form a great circle in their changing, and always come back again to where they were. The life of a man is a circle from childhood to childhood and so it is in everything where power moves. Our tipis were round like the nests of birds and these were always set in a circle, the nation's hoop, a nest of many nests where the Great Spirit meant for us to hatch our children.”❖

National Flood Proofing Committee Initiatives

Ken Zwickl -CECW-PF

The Corps of Engineers National Flood Proofing Committee has initiated an effort to promote the use of nonstructural measures for flood damage reduction. The effort was kicked off with a Nonstructural Workshop held at the Hydrologic Engineering Center (HEC) in March 1999. The purpose of the workshop was to educate NFPC members on the plan formulation process for nonstructural measures, and to develop a plan of action for promoting nonstructural measures within the Corps. Guest lecturers presented case studies of nonstructural flood damage reduction projects that made it through the Corps planning, engineering, design, and construction process and are complete.

As you may be aware, the NFPC is chartered by the Headquarters Chief of Planning and functions under the general direction of the Chief, Flood Plain Management Services & Coastal Resources Branch, Planning Division, Directorate of Civil Works. The NFPC includes members from nine Districts and one Division, who meet 3 – 4 times per year to review progress on activities, review and revise goals, and lecture at flood proofing workshops around the country. Current activities include development of a coastal flood proofing display model, coordination activities with ASCE for development of flood proofing building codes, and the aforementioned nonstructural flood damage reduction emphasis.

NFPC members are currently reviewing documents from Corps projects, which have included implementation of nonstructural flood damage reduction measures. The intent is to prepare and distribute a publication detailing the planning, design and implementation process, which led to these successful

nonstructural projects. Any districts that have potential candidates for this publication should contact Larry Buss, Omaha District, project coordinator for this effort.

Further information on the NFPC can be found at the Corps Planning Division website, <http://usace.army.mil/inet/functions/cw/cecwp/nfpc.htm>. ❖

Information/Tools U-Can-Use

Chuck Moeslein - CECW-PF

As you may recall, last month we initiated a list of web-site addresses to serve as the beginning for one source of user-friendly information that could assist Corps Planning folks in their day-to-day activities. Given the tremendous response we received from that landmark article, we thought it only fitting to answer your pleas for "...more, more, more..." by providing yet another invaluable source of information to add to your "Rolodex" of "must have" URL's. Therefore, this month we are proud to present, the following American Heritage Rivers Initiative Information Services Page URL for your surfing pleasure:

www.epa.gov/rivers/services

Upon entering this web site and clicking your mouse on the "Financial Assistance & Guides" Category of Assistance, you will find a plethora of Federal agency grant and financial assistance funding information. In this way, when you're out there talking with project sponsors, you'll have yet another tool at your disposal to assist the sponsor in leveraging available funding sources to help make that project dream of theirs become a reality. So don't delay, surf the web and check it out - TODAY! ❖

Eastern Cave Bat Alert

Chester O. Martin CEWES-EN-S

Bats represent an important faunal component of most forested ecosystems, and can contribute significantly to a region's biodiversity. Approximately 20 species of bats occur in forested areas of the eastern United States; all of these species are insectivorous and extremely beneficial because they consume large quantities of moths, flies, mosquitoes, beetles, and other nocturnal invertebrates. In fact, most bats eat more than 50 percent of their body weight each night, which can amount to 3,000 or more insects. Although numerous studies have documented the ecological and economic importance of bats, they often are misunderstood, and populations may be intentionally destroyed or indirectly affected by habitat loss and disturbance of roost sites. Although bats are environmentally important worldwide, many species are in serious decline and in danger of extinction unless steps are taken to protect their populations and the habitats upon which they depend.

Several eastern cave-dwelling bats have been designated as threatened, endangered, or sensitive species. The Indiana bat (*Myotis sodalis*) is federally listed as endangered and is nearly extinct over most of its former range in the Northeast. The main breeding and hibernating areas for the species appear to be associated with major cavernous limestone regions in the midwestern and eastern states, and more than 85 percent of the population hibernates at only seven locations in Missouri, Kentucky, and Indiana. The endangered gray bat (*M. grisescens*) occurs in cavernous regions of Arkansas, Missouri, Kentucky, Tennessee, and Alabama, with occasional colonies in adjacent states. The southeastern myotis (*M. austroriparius*) occurs in scattered locations throughout the southeastern states and is designated as a "Species of Concern". The Townsend's big-eared bat (*Corynorhinus townsendii*) consists of two disjunct eastern subspecies, both of which are endangered; these are the Ozark big-eared bat (*C. t.*

ingens) and Virginia big-eared bat (*C. t. virginianus*). Rafinesque's big-eared bat (*C. rafinesquii*), although not federally listed, is considered a sensitive species in several states.

All of the species noted above depend on caves or caverns at least on a seasonal basis. Gray bats are year-round cave residents and migrate between cold hibernation caves (hibernacula) in winter and warm caves during the summer. Townsend's big-eared bats have been reported almost exclusively from caves in the eastern states. Indiana bats typically winter in limestone caves and abandoned mineshafts but form maternity roosts under loose bark and in hollow trees. Rafinesque's big-eared bats tend to hibernate in caves, mines, and artificial habitats (e.g., cisterns and wells) in the northern part of their range, but use hollow trees and structures such as abandoned buildings and bridges in the Coastal Plain. The southeastern myotis is known to roost in caves, hollow trees, and a variety of artificial structures. Mature forested areas surrounding caves or located between caves are extremely important to these species, and wooded riparian corridors and aquatic areas are critical as foraging sites.

The long-term decline of bat populations in the eastern states is due to several natural and human-induced factors. Natural factors include flooding, cave-ins, and freezing, but these are rare occurrences. Human factors are the main causes of decline in most species and include intentional eradication, cave commercialization and exploration, physical modifications to cave entrances, deforestation and land clearing, deterioration of riparian habitats, stream modification, strip-mining, excessive use of pesticides, and urbanization. Disturbances to winter hibernacula are especially destructive to bat populations. Management strategies for the conservation of eastern bats include protection of maternity and wintering caves sites, riparian zone restoration, maintenance of adequate mature timber stands, snag trees, and provision of artificial roost sites for some

species. Foraging habitat should be protected by preserving the water quality of foraging sites and maintaining forested areas associated with foraging areas near roost caves. Surveys of potential habitat should be conducted to document the occurrence of bat species and to gain a better understanding of their distribution, ecology, and habitat use in an area.

Ecosystem Management and Restoration Research Program (EMRRP) indicated that bats were a concern on several Corps projects in the East. Ten projects in six Districts reported the occurrence of protected bat species on their projects. Numerous additional projects likely support substantial bat populations, but adequate surveys have not been conducted. Several projects have implemented management measures to protect caves used by the Indiana bat and gray bat, and there is potential for including forest bats in management programs at Corps projects nationwide. Two current EMRRP work units - "Improved Methods for Ecosystem-based Habitat Management at Corps Projects" and "Reservoir Operations - Impacts on Habitats of Sensitive Species" include investigations of bat conservation and management needs on Corps projects and will provide management recommendations suitable for Corps planning and operations activities. The importance of riparian corridors to bats is also described in the PROSPECT course "Riparian Zone Ecology, Restoration, and Management". Additional information on selected bat species will be provided in future issues of "Planning Ahead". ❖

PROSPECT Course Offered on Riparian Ecosystems

Chester O. Martin -CEWES-EN-S

The U.S. Army Research and Development Center, Waterways Experiment Station, has developed a new PROSPECT course entitled "Riparian Zone Ecology, Restoration, and Management" (course #281/CECW-PD). The course addresses Corps of Engineers planning and management issues that pertain to riparian (streamside) ecosystems in a variety of settings. Through a series of lectures, practical exercises, and field activities, course participants receive instruction on the functions and ecological importance of riparian zones, conservation issues, federal and state agency programs, vegetation and faunal characteristics, fluvial geomorphology, potential impacts resulting from various land use practices, and restoration and management techniques that can be applied to maintain or improve riparian systems.

The course was initially taught in Vicksburg, MS, in 1998. There is one remaining FY99 session in Fresno, CA (14-18 Jun 99). Several slots are still available for the Fresno session. One session (Harlingen, TX, 1-5 May 2000) will be offered in FY2000. Contact John Buckley (CEHRP-P-T; 256/895-7431) to register for the course. Chester Martin (CEWES-EN-S; 601/643-3958) may be contacted regarding technical information. ❖

Submissions Deadline

The deadline for material for the next issue is 27 May 1999. ❖

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